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ABSTRACT

This paper reports on a visit by two U.S. middle school teachers, one a special educator, to a conference on educational technology held in Japan. The trip also involved visits to elementary and secondary schools in Japan and a home stay with a Japanese family. The paper addresses misconceptions, differences, and similarities noted by the authors in such areas as terminology, the teaching profession, the school year, the day structure, teacher flexibility, technology, and special education. Reports of on-site visits to three schools focus on examples of technology being used. The authors concluded that the use of technology in Japanese education, while rapidly expanding, is not yet at the same level as in the United States and that the ideology of least restrictive environment is contrary to the current structure of Japan's educational system. Contains 15 references. (DB)

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WORLD REHABILITATION FUND, INC. AND THE UNIVERSITY OF NEW HAMPSHIRE INTERNATIONAL EXCHANGE OF EXPERTS AND INFORMATION IN REHABILITATION

Perspectives from the 1992 Study Seminar and Conference on Educational Technology in the US and Japan, Implications for Special Education

A Study done in July 1992

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Introduction

The purpose of our IEEIR project was to exchange information with Japanese colleagues and share ideas on the use of technology in public elementary and secondary schools. The emphasis of the study was to learn how technology is being used in Japan to foster inclusion of students with mental retardation in the mainstream.

Through the IEEIR Fellowship, we were able to participate in a conference on educational technology at Mukogawa Women's University, near Kobe, Japan and at IBM Tokyo. The conference and travel seminar was sponsored by the Teachers International Exchange and the Japan Association of Technology and was supported by IBM Japan and TECHNOLOGY AND LEARNING Magazine. It provided opportunities to learn about Japanese education and culture through visitations to elementary and secondary schools, a home stay with a Japanese family, and travel to points of interest and historic sites. It was a forum through which Japanese and American educators were able to exchange information on the uses of technology in education. The presentations illustrated the uses of technology in individual schools and the discussions enabled educators to share ideas and encouraged personal interaction and continuing contact between teachers in the US and Japan.

We are middle school teachers whose careers in education each span a quarter of a century. We work together to provide quality education in the mainstream for all students. As a teacher for students with mental retardation and a teacher for sixth grade, we combine our expertise to insure that disabled students are mainstreamed with full inclusion in regular education classes for language arts and social studies. Technology is used to help equalize the educational process for all students. Through a combination of group and individualized activities which the children share with their classmates, all students are included and contribute to the end result. Students with

mental retardation learn that they can achieve with their non-disabled peers and the peers learn that everyone regardless of ability can make a contribution.

Our conference presentation was "Integration of Computer Use Across the Curriculum--Enabling Students with Mental Retardation to Function More Independently in the Mainstream." Since the placement of students requiring special education services in regular school settings is very rare in Japan, our topic generated curiosity. The majority of the conference attendees had little experience with special education students or teachers.

We provided background information on least restrictive environment and the use of technology by teachers to foster inclusion. We explained special education terminology and philosophy to educators with no previous contact with programs, special schools, or even special education students needing services. We showed a video of our regular and special education students working on a poetry booklet and sharing their works with each other. We challenged our colleagues to locate those students with mental retardation. During the video, we realized that our Japanese colleagues do not identify specific poetry types and had no language equivalent to diamante, acrostic, cinquain, or shape patterns. In retrospect, had we been able to change our presentation, we would have shown the use of LOGO and word processing and how the utilization of technology encourages students to think sequentially and express ideas creatively.

Our birds-eye view of Japanese education and their view of that in the U.S. provided insight and exchange of information with a select group of educators. The twenty-five American educators present represented all geographical areas of the United States but did not represent the norm of those areas. As a group, we herald technology as the present and future, knowing that, unfortunately, a number of our U. S. colleagues remain technologically illiterate. Our Japanese colleagues shared their plans for change in their educational system to foster and emphasize cooperative learning and creativity allowing for the use of knowledge rather than knowledge of facts. Yet, they fully realize that this change requires a society transformation - a painfully slow process. We both want our students to look

beyond their respective countries to a global community which encourages a full range of human interactions among students and adults using multimedia as an avenue to variety of expression.

This report represents our perspectives gained from ten days of intensive interaction with Japanese colleagues. It is our hope that other American and Japanese educators will explore our impressions and broaden the dialogue and further exchange between our cultures.

Misconceptions / Differences / Similarities

Each country's educational services have both strong points and weaknesses in delivery. Unfortunately gross misconceptions about the educational systems in both the US and Japan abound. We tried to sensitize ourselves to the cultural differences in Japan. We learned "survival" words in Japanese both by listening to Berlitz language tapes and by communicating with Japanese citizens who were working in our area to learn more about proper etiquette. Since we both had extensive background information on the history of Japan, we concentrated our preparation on searching for new information about education. In addition to reading current newspaper articles and travel materials, we read as many related materials as possible. From these various readings, we made certain assumptions about what we expected to encounter. Much to our surprise, many of those preconceived concepts gleaned from our readings were at least in part erroneous.

Terminology

The lack of common backgrounds and differences in educational terminology and interpretation created confusion. The Japanese centralized system of education was being countered with our decentralized system in the United States. For every area our Japanese colleagues found unfamiliar, there was at least one we were uncomfortable with as well. That districts made decisions about funding, days and time in attendance, technology, bussing etc. was difficult for our colleagues to grasp. The individual educator being the moving force for innovation within institutions and systems was common, however. Our similarities in purpose and desire to prepare students for the global society of the 21st century was overwhelming.

We found that comparing education in Japan with that in the United States is quite difficult since cultural differences unique to each society are so radical that a common terminology is lacking. Although the same words may be used by each, the cultural differences do not allow for the same meaning. Diversity in the classroom is a good example. To us diversity meant students with various racial, ethnic, or learning backgrounds. To our Japanese colleagues, it meant regional, social, or occupational differences.

Teaching Profession

Teaching is considered a full time profession in Japan and is highly regarded. Japanese teachers instruct 30 hours a week at the elementary level, 20 hours a week at the middle school level, and 16 to 18 hours a week at the high school. Our Japanese colleagues taught 4 classes daily and used the other time for preparation of lessons, meetings with colleagues, and supervising after school activities. Except at the elementary level, the majority of teachers are male.

School Year

The Japanese school year is divided into terms and begins in April. There are holidays throughout the year, a six weeks summer holiday, and two to three week breaks between each term. The length of the school week has recently been reduced from five and 1/2 days to five days. This directive by the Mistery of Education is a major reform and is being phased in gradually. Students now receive one Saturday a month off by directive. Localities may offer more than the one Saturday required.

Day Structure

Teachers with whom we spoke were shocked to learn that we teach a 7 period day with one planning period for preparation without students. Our twenty eight minute lunch period and four minutes break between classes in our school were alien to them. Students in Japanese middle schools have 6 period days, fifty minute class periods, ten minute class breaks, and 50 minutes for lunch. Not all subjects are taught daily. A student might have 5 hours of math a week, 3 hours of English, etc. In general, the school day was 6 hours plus an hour for lunch. While the number of days a Japanese student attends school is greater than that in the US, the classroom time on academic tasks is approximately equal.

Flexibility

A misconception we took with us was that the Japanese teacher had little flexibility in daily activities. The book, JAPAN'S HIGH SCHOOLS by Thomas Rohlen, we had read about education in Kobe emphasized the centralization of Japanese curriculum and stated that "...students of the same grade are expected to learn the same materials in the same time frames with the help of the same textbooks, television programs, and other teaching aids." The teachers we encountered from elementary, middle, high, and college levels indicated that we had been misled. They stated their only requirement was to cover the curriculum guide in a given period of time, The order of presentation is at the discretion of the teacher; it is not a day by day mandated process. In actuality, our colleagues seemed to have at least the same, if not more, flexibility in planning than we.

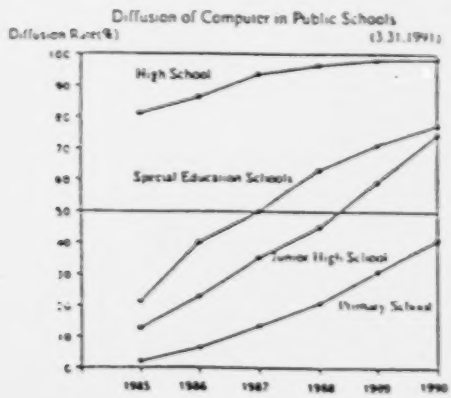
Technology

The misconceptions, differences, and similarities within the two systems are quite evident in the role of technology in education. Though Japan is a highly developed technological country, computer use in education is just evolving. To speed this development, the Ministry of Education has established guidelines for all jurisdictions and has mandated that by 1993, all junior high schools will teach computer "Information Education" as a required subject. Unlike the United States where the Federal government does not directly fund technology for the classroom, the centralized educational system of Japan subsidizes 1/3 of the expenses of computers for schools. Japan's goal is to increase educational computers in schools from 250,000 (1990) to 400,000 computers by 1995. Statistics from the Ministry of Education show that the diffusion of computer use for all school levels has risen dramatically since 1985.

Currently computers are located in a lab setting with twenty computers at the elementary level and forty at the high school. Middle schools will have computers within the next two years. The labs are staffed by two teachers. Classes usually have about forty students. The availability of software in Japanese, while increasing, continues to be a major concern. Schools with computer labs rely on teacher made software and programming such as BASIC and LOGO. As in the United States, teacher training and the number of teachers actually using computers in the classroom is also of major concern.

Ministry of Education

- subsidizes 1/3 expences of computers for scools.
- 1992 Budget for subsidy : 5,700,000,000yen(≒$44,000,000) (including local school board 17,000,000,000yen)
- 1995(plan) 400,000 educational computers (1990 :250,000)
- Numbers Equipped per school
  - 3 for primary school (1990 : 275 pupils/computers)
  - 22 for junior high school (1990 : 79 pupils/computers)
  - 23 for senior high school (1990 : 39 pupils/computers)
- 1993 Required Subject "Information Education (Information Basis)" in junior high school



The Number of Teachers using Computers

Mar.1991

		Number of Teachers (May 1990) (A)	Number of Teachers Who can Computers (B)	RATIO (B/A)	Teachers Who can teach how to use Com (C)	RATIO (C/B)
Primary School		439,800	56,284	12.8	11,542	20.5
Junior High School		275,422	62,570	22.7	18,045	28.8
High School		220,193	78,086	35.5	33,228	42.6
Special Education	Schools for the Blind	3,359	1,062	31.6	328	30.9
	Schools for the Deaf	4,646	1,092	23.5	452	41.4
	Schools for the Hand-capped	37,685	4,433	11.8	1,268	28.6
	Sub-Total	45,690	6,587	14.4	2,048	31.1
TOTAL		981,105	203,527	20.7	64,883	31.9

The age of educational technology in the United States began in the late 1970's. Teachers worked diligently to bring one or two computers into their schools. These were usually placed in the back of the classroom and seldom used. Since there were few commercial programs available, teachers made their own and stressed computer literacy and programming. From the mid to late 1980's computers were centralized into labs. A variety of inexpensive software became available and the computer was evolving as a powerful educational tool.

Today the United States averages one computer per fifteen students with over three million computers in grades K - 12 nationwide. Percentage wise, 99% of the K -12 schools have at least one computer. However, computer distribution is still very uneven. There are some schools which may have only one or two computers and others which infuse computers and the latest technology throughout the classrooms. Although far too many elementary and middle schools have one lab and a few other computers scattered throughout the classrooms, change is occurring.

In a number of schools, computers are being utilized as learning tools in the classrooms where groups of students work in pods exploring, exchanging, and utilizing information. Through networks and telecommunications, the availability of knowledge is expanded. This type of cooperative learning is conducive to inclusion of students with special needs. Computers and assistive devices are being used to help equalize the educational process, just as they enhance the work place and the leisure environment. The use of technology enables students with special needs to function more independently and with less segregation and professional intervention.

Special Education

The general goal of special education in both the United States and Japan is to provide an appropriate education to meet the unique needs of each individual. The laws in the United States reflect a philosophy of maximum participation by special students in regular education opportunities. Although special education in the United States is evolving to the consultive model in which special educators assist regular

education teachers with the adaptation of technology for all students, actual implementation is very rare.

The Japanese system has not yet embraced the concept of least restrictive environment. Models currently being used in Japan are based on segregation. Although there is a trend toward integration, schools for specific handicapping conditions continue to educate the majority of students receiving special education services. The Coeducation Movement in Japan has called for an end to segregation and is stressing student togetherness. A number of parents want their children in neighborhood schools and are becoming vocal in advocating the decentralization of the special schools for the handicapped. While a 1990 law now gives the disabled in Japan a right to schooling or other care in their own community, it is only for the first nine grades of education. Unfortunately, the majority of students with disabilities are excluded from higher education.

Some of the Japanese teachers with whom we spoke expressed concerns similar to those we continue to encounter in the US. Until all educators embrace the concept that equal access to educational opportunities is a student's right, regardless of ability, inclusion will continue to be illusive.

On-Site Visits

We visited three public schools in the Kobe vicinity. The elementary school was noted for its computer lab. The middle school had one of the few classes for students with mental retardation and the high school was one of only four technical high schools in Japan. All students wore uniforms. Classes were usually forty students. Some classrooms were air conditioned, however, none of the hallways were. We removed our shoes at the elementary school and wore slippers during our visit. At the other schools, shoes were not removed. All of the schools had swimming pools and swimming is a major part of physical education curricula. Transportation is provided for special education students only. Other students use mass transit, walk, or ride bikes.

Oyake Elementary School, Tatsuno, Japan

This elementary school was for students in grades 1 through 6 and had one computer lab of 20 computers. The school had no students receiving special education services. Students from this school did interact with those from a nearby school for the handicapped. This interaction was craft oriented only and did not include academics. We were unable to ascertain whether the interaction was age appropriate and consistent.

We observed a 4th grade class of 40 students in the computer lab, two students per computer. The twenty teams were all using the same teacher developed computer program about nutrition. Through the "Manpuku Go" program, students developed healthy menus to reinforce good eating habits. "All operations (were) performed by clicking the mouse so that the students (were) not required to learn any complicated syntax." The lesson had been introduced by the teacher. Assessment was made through a period of oral questions and answers. The class concluded with a video about nutrition.

We also observed students in several classes preparing lunch. This duty is shared by all and is part of the school routine. All of the students were eager to interact with us -- speaking a few words of English and having photographs taken.

Obu Junior High School, Kobe, Hyogo

This school is for students in grades 7 and 8 and had no computers. Its purpose is to prepare students for the tests they must take to enter high school. These tests basically assign students to career tracks. It was one of only a few schools which included a class for students with a disability - a direct result of efforts by parents to have their children receive educational services in neighborhood schools rather than special education schools.

We observed a special education class for students with mental retardation. There were two students and one teacher. Students were mainstreamed only for non-academic classes with age appropriate peers. There was evidence of English language instruction and math. The

curriculum emphasis was craft oriented. The special students had made hooked rugs, various models from paper, clay and wood, and an assortment of boxes from milk cartons. They were also assembling radio components.

In addition, we visited various other classes. In the swimming classes students were doing aquatic exercises. In music they were singing in a room segregated with boys on one side and girls on the other. The students in industrial arts were making wooden boxes for cassette holders. We also looked in on classes for math and Japanese. Again all of the students were very eager to interact.

Himeji Technical High school, Himeji, Hyogo, Japan

This high school was one of three state-of-the-art technical institutes in Japan and is their only school to offer an Electronic Mechanical Engineering Course. There are 96 teachers for the predominately male, select student body. There are 93 females out of a total of 942 students. Students must be tested to gain entry and only forty new students are admitted annually for each of the eight courses of study. There are no special education services offered at this school or at any of the non special education high schools. Teaching relevant courses to meet the concerns and needs expressed by corporations is a priority. Following is a list of goals and objectives from the school guide.

7 The focal point of education at Himeji Technical H. S in 1992.

(1) The main objectives of our school.

The three primary educational goals of our school are: enhanching creativity, promoting self-displine,and encouraging the development of interpersonal relationship. Our unique progran promotes curricular flexibilit, and our newly-established Dpartneent of Electrical Mechanical Engineering is rapidly adapting itself to the latest technical advances.

a. Teaching goals

(a) We try to create an atmosphere where teachers may instruct in a kind but firm manner and where students are willing to study.

(b) We try to encourage students to improve their scholarship and to take pride in their school.

(c) We try to maintain a disciplines enviroment in which students respect themselves and each other.

b. Major administrative goals.

(a) Course study goals.

- Monitoring the organization and contect of all course curricula.
- Research and development of instructional methods aimed at satisfying individual needs.
- The completion and application basic education.
- Establishing staff training systems to improve teaching methods.

(b) Students guidance goals.

- To encourage the students to acquire the customs and habits of good citizenship.
- To complete traffic and safety education in boththeory and practice.
- To encourage extra-curricular activties.
- To realize all students guidance goals.

(c) Career guidance goals

- Collection of up-to date information on career options and higher education opportunities.
- Developing courses of study which are relevant to the students' lives after graduation.
- Providing career guidance according to individual abilities and aptitudes.
- Fostering students' willingness to work.

(d) The promotion of international understanding.

- To improve students command of English.
- To actively promote international understanding.

8 Investigational themes.

(1) The practical study of course carricula (This school has been assigned by the Ministry of Education to study carriculum in several high schools.)

(2) The practical study of tranferable credits among coopreating schools. (This school has been assigned by the Ministry of Education to study curriculum in several high schools.)

(3) The promotion of "biotechnical education." (This school has been chosen to study the implementation of special facilities in field.)

(4) The promotion of "informational technical education" through the cooperation of all educational disciplines.

We observed a drafting class and a programming class. There were between 40 to 50 students in each. Every student had a computer but shared a printer with one other. The Electronic Mechanical Engineering school had a host computer and an on-line system of 10 CADs, 63 TSS terminals, and FMS. The data programed is transmitted to the cell-controller of the FMS system. The data which commands the automation systems, robots, and automatic stockrooms are transmitted to the TSS terminal to complete the products in the FA factory. Thus students participate in a hands-on experience of design, production, and delivery of goods.

Home-Stay

A major high-light of our experiences was an overnight visit with a host family. It provided an informal opportunity to discuss concerns and share hopes for our emerging global society. The views expressed by our host family were echoed by others we met. As the development of the total child is emphasized, a philosophical shift in Japan's educational system is occurring. Reasons cited for this shift included an awareness of the importance of leisure time and the reduction of stress.

Our host family was characteristic of a new breed in Japan which recognizes the need for their children to have a more balanced education. They do not use the "cram schools", but do set aside at least three hours a night for homework. The mother expressed her views about education by stating, " I don't want my son's mind to be as narrow as the islands of Japan are geographically." Both parents were working and had experiences visiting and living abroad. He was a professor of technology and liberal arts and she was an assistant director at a college for community care. They have three children - a daughter working in another city, a daughter in college in the United States, and a fourteen year old son at home who attends junior high school. Their son visited the United States last summer and attended two different camps. All members of the family were comfortable with leisure time and each actively pursued hobbies.

Conclusions

We went to Japan eager to exchange our knowledge and experiences involving inclusion and technology with our Japanese colleagues. We anticipated gaining first hand insight on the use of Japanese technology models by students with mental retardation in the regular classroom. We had assumed from what we had read that their use of technology would be equivalent to, if not greater than, ours.

From our experiences with on-site visitation to three targeted schools, a home stay, and discussions with a cross section of innovative educators from elementary, middle, high, and college levels, we concluded that the use of technology in Japanese education, while expanding at a rapid rate, is not at the same level as that in the United States.

Since decentralization of special education programs is also evolving, the future potential is good for the use of technology to encourage the infusion of students with mental retardation in the mainstream of public education. Unfortunately, the ideology of least restrictive environment is contrary to the current structure of Japan's educational system especially at the high school level.

As a world community emerges, the success of a future promising peace and cultural understanding may become a reality for our students. They will have the opportunity to foster global citizenship in ways our generation never dreamed possible. The relationship between the people of Japan and the United States is clouded with misunderstandings. We believe that world cooperation and international understanding should be promoted through education and the continuing involvement of students through the use of international telecommunications - classroom to classroom. As our students change, so do their Japanese peers. On-going communication between the students of these two cultures would not only broaden each student's formal education, but would in turn foster a continuing, life-long understanding and acceptance of those with whom they will share the future.

A continuing dialogue with colleagues from this conference is our objective. We hope to participate in the next Technology in Education onference, to be held in the United States and again exchange experiences as we prepare all of our students for a future which includes freedom of choice and independence.

Suggestions for Exploration

A search for current related literature revealed that research about Japan's use of technology for disabled students is lacking. Translation is a problem; however, we found our Japanese colleagues eager to translate our presentations. A better effort in securing Japanese research for publication in the United States and making more English language research available in Japanese would be mutually beneficial.

In addition, communication between parents who were instrumental in breaking the barriers of segregation in the United States and those who are leading the movement in Japan would be interesting.

Finally, since secondary education at the high school level in Japan is predetermined by testing, a starting point for the use of technology as a tool for equalization and inclusion of students receiving special education services would be the early childhood ages. An exchange of information about technology inclusion models successfully used in the United States may also be an avenue to explore.

Implications for the United States

Today's student will spend the preponderance of his or her working careers in a technologically advanced 21st century. Today's child with mental retardation not only must be incorporated into that society at large, but society must also learn to accept him or her as an equal member. Technology offers the avenue through which students with mental retardation can contribute to the environment in which all live, work, and play.

Educators in the United States must embrace the use of technology accross the curriculum and grab the opportunity to change the education of all of our children into that of life time learners. We must strive to effectively utilize all of the medias available to enable our students to progress from learning knowledge to application of knowledge. The era of basic skills worksheets is extinct, yet many of our schools continue to be driven by its mentality. Technology offers all students the opportunity through which they can learn the patterns and thought processes necessary for productive futures. In words from information about the Virginia World Class Education:

"The quality of children's lives in the twenty-first century will be affected significantly by changes instituted now. The opportunity to create real change comes all too seldom. If we seize this chance and work together, we can achieve results that will make a great difference in public education. That is an opportunity not given to many." (At the Center: Virginia's Common Core of Learning, p.8)

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